

Baltimore Harbor TMDL Stakeholder Advisory Group (SAG)
June 10, 2003 Meeting Minutes

Maryland Department of the Environment
Montgomery Park
Baltimore, Maryland
9:30 – 12:30

Overview:

The meeting consisted of presentations by the University of Maryland and Virginia Institute of Marine Sciences on the toxic metals modeling effort. Initial results from scenario runs were presented as part of these presentations. The Maryland Department of the Environment (MDE) presented a brief overview on the nutrients modeling effort currently undertaken by the agency.

Presentations

University of Maryland Modeling Update (Joel Baker)

Goal: Highlight winter field survey data and provide model update regarding scenario runs

Winter Field Survey

- Data from the winter survey was presented based on results completed for the Harbor and the mainstem of the Chesapeake Bay.
- In general, the data indicated that concentrations of metals are higher at the mouth of the Harbor than in the mainstem of the Bay.

Scenario Run Update

- Results from two scenario runs were presented – 1) current loadings with sediment concentrations from the Harbor Mapping Study and 2) current loading with sediment concentrations set at zero.
- The results indicate that sediment concentrations will decrease in time given the current loadings.
- The model predicted water column concentrations are similar to those measured in the winter survey.

*In several of the graphics in the presentation, ERM levels were presented for comparison with sample concentrations. However, the concentration level where the ERM levels were placed is actually half of the ERM concentration. Therefore, the lines on the graphics represent 1/2 of the ERM. Edits have been made to the presentation posted on the website to reflect this issue.

Discussion

The discussion covered several topics including the inclusion of dredging/sediment disturbances in the model, the impacts of atmospheric loading, sediment reduction/oxidation chemistry, the impacts of phytoplankton on zinc concentrations in the water column, and the potential for further sediment chemistry sampling.

The results of the model runs indicate that sediment concentrations are decreasing based on the current estimated loads. However, it appears that the model may be predicting a recovery rate that is higher than what is actually occurring in the Harbor. A possible reason for this rate difference is that the model does not include a sediment mixing parameter within the sediment bed.

VIMS Modeling Update (Harry Wang)

Goal: Provide results from initial scenario runs

Modeling Update

- A review was provided of the hydrodynamic, sediment, and toxic models
- A review was provided of the calibration parameters for the VIMS models
- Results from scenario runs were presented
- Results from sensitivity tests were presented

Based on the scenario that was run using 2000 point source and nonpoint source loads and sediment concentrations from the 1996 Harbor Sediment Mapping Study, the concentrations of Zn, Pb, and Cr are all decreasing over the ten year time period of the model simulation. This indicates that impairment in the sediment is caused by legacy contaminants that are present in the sediments. The model results indicate that for Cr (except Bear Creek) and Pb the concentrations would fall below a level of $\frac{1}{2}$ of the ERM. However, for Zn the model runs indicate that the concentrations approach, but do not decrease below $\frac{1}{2}$ the ERM. Point sources appear to influence local areas and are more noticeable in the Inner Harbor. Meanwhile, the Bay tends to influence the outer Harbor.

The sensitivity test results with clean sediment initially indicate that the current loading cannot recontaminate the harbor sediment to level of concentrations from the 1996 Harbor Sediment Mapping Study. This result confirms that impairments in the sediment are caused by legacy contaminants in the sediment. And also, the choice of partition coefficient could impact the rate of recovery based on model sensitivity test.

Discussion

The discussion covered several topics including: the influence of groundwater, the process used to develop the partitioning coefficients, and the potential for porewater data collection to occur.

Eutrophication Model Update (Miao-Li Chang)

Goal: Provide overview and update of MDE eutrophication modeling effort

Modeling Update

- Endpoints – Dissolved oxygen and chlorophyll a
MDE plans to adopt the CBP dissolved oxygen criteria. MDE also expects to adopt the narrative chlorophyll criteria and maintain a goal of having concentrations below 50ug/l. A detailed explanation was given to assist in the explanation of the draft assessment of the endpoints in the Patapsco and Back Rivers.
- Model - Calibration and review processes
MDE is working on finalized the model calibration through a series of review processes. The review processes include MDE internal review, State agency/local government review, Chesapeake Bay Program review and public review (stakeholder review).
- Proposed scenarios – MDE is proposing as the first scenario a run that is comparable to the CBP model run (CBP 175) that was used to develop the recent allocations received by Maryland.
- Schedule/Timeline – Calibration review in July, Scenario review in August/September and Report review in October

Next Steps

- 1) VIMS and UMCES will continue to refine the toxic metals models and integrate the results. MDE will begin the development of final load values and subsequent allocations to the various sources
- 2) MDE will continue to develop the eutrophication model and expects to present the results of first scenario run at the next SAG meeting.
- 3) MDE will determine if a calibration review meeting is needed for stakeholders interested in technical aspects of modeling.

Scheduled Meetings: All Meetings Scheduled to be held at the MDE offices at Montgomery Park

July 29, 2003 (1:00 - 4:00) – General Outreach Meeting
Other technical meetings will be scheduled as needed